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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,009	02/02/2001	Michael A. Vyvoda	MA-027	7430

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EXAMINER

MAI, ANH D

ART UNIT PAPER NUMBER

2814

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/776,009

Applicant(s)

VYVODA ET AL.

Examiner

Anh D. Mai

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 63-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 63-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/28/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 28, 2004 has been entered.

Status of the Claims

2. Amendment filed June 28, 2004 has been entered. Claims 1-62 have been canceled. Claims 63-70 have been added. Thus, claims 63-70 are pending.

Claim Objections

3. Claim 66 is objected to because of the following informalities:

The limitation "wherein the first percentage is greater than 50 percent" has already been claimed by claim 64. Although claim 66 depends on claim 65, however, the scope of claim 66 is identical to that of claim 64, which is greater than 50 percent.

Appropriate correction is required.

Response to Amendment

4. The amendment filed June 28, 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall

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introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

New claim 67 recites: "wherein the first percentage is less than or equal to 50 percent".

Although a percentage of less than 50 percent does appear in the specification, however, this percentage is for the polysilicon formed in the shapes of islands as shown in Figs. 3-4, not the strips.

For the strips shape, Figs. 1A-B, the non-critical percentages are 50%, 60% or 70%.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 67 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There does not appear to be a written description of the claim limitation "wherein the first percentage is less than or equal to 50 percent" in the application as filed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claim 69 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 69 recites the limitation "wherein the strips have a shortest dimension between 0.25 and 500 microns" in lines 1-2.

There are two "strips", dielectric and polysilicon, recited in claims 63 and 68.

It is not known which "strips" is encompassed by claim 69, thus, claim 69 is indefinite.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 63-70 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wu (U.S. Patent No. 6,008,087).

With respect to claim 63, insofar as the structure is concerned, Wu teaches a wafer having a surface as claimed including:

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a plurality of elongated strips of polysilicon (16); and
a plurality of elongated strips of dielectric material (20), the strips of dielectric material alternating with the strips of polysilicon (16),
wherein the surface has been planarized by chemical mechanical planarization, and
wherein a first percentage of total wafer surface area that is polysilicon is less than or equal to 70 percent ($\leq 70\%$). (See Figs. 6 and 9).

Product by process limitation:

The expression "wherein the surface has been planarized by chemical mechanical planarization" is taken to be a product by process limitation and is given no patentable weight. A product by process claim directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See *In re Fessman*, 180 USPQ 324, 326 (CCPA 1974); *In re Marosi et al.*, 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process" claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

With respect to claims 64-67, Wu teaches the dimensions of the silicon nitride pattern 6 (300-3000 Å), the opening 12 (500-5000 Å) and the thickness of the polysilicon layer 16 (200-

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3000 Å) thus, encompass the claimed first percentage of greater than 50 percent ($>50\%$), less than or equal to 60 percent ($\leq 60\%$) or less than or equal to 50 percent ($\leq 50\%$).

With respect to claim 68, the strips of polysilicon (16) of Wu have a shortest dimension (200-3000 Å), thus, less than 500 μm .

With respect to claim 69, as best understood by the examiner, the strips of polysilicon (16) of Wu have a shortest dimension (200-3000 Å) overlaps the claimed range (between 0.25 and 500 μm).

With respect to claim 70, since the first percentage of total wafer surface area that is polysilicon of Wu is less than or equal to 70 percent ($\leq 70\%$), therefore, the surface of the wafer of Wu inherently can attract enough water to wet sufficiently allowing removal of residual particles therefrom.

Response to Arguments

8. Applicant's arguments with respect to new claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.	U.S. Patent No.	6,185,122	Johnson et al.
	U.S. Patent No.	6,483,736	Johnson et al.
	U.S. Patent No.	6,486,065	Vyvoda et al.
	U.S. Patent No.	6,525,953	Johnson

U.S. Patent No. 6,631,085 Kleveland et al.

U.S. Pub. No. 2002/0079553 Cleeves

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh D. Mai whose telephone number is (571) 272-1710. The examiner can normally be reached on 9:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anh D. Mai
July 9, 2004

A handwritten signature in black ink, appearing to read 'Anh D. Mai', with a stylized flourish extending from the end.